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Bacteriological and Molecular studies on some Gram negative bacteria isolated from edible Egg and Poultry Products

A thesis Presented by

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7- SUMMARY

Gram negative bacteria are considered one of most important pathogens that causing foodborne infections worldwide and dangerous for human health . So that this study was done to make afocus on most Gram negative M.O from medical point of view also to spotlight on PCR as an accurate, rappid and sensetive methods required for detection of these pathogens.

The objective of this study is a bacteriological and molecular studies on some Gram negative bacteria isolated from edible egg and poultry products.Through isolation and identification of *E.coli, Pseudomonas aeruginosa* and *Salmonella* from chicken fillet,chicken liver ,smoked turkey products and edible eggs, serotyping of isolated strains and detection of antibiotic sensetivity for isolated strains and application of PCR as an accurate procedure for determination of virulence and resistance genes in isolated strains.

***Escherichia coli* results:**

Escherichia coli used as an indicator microorganism because it provides an estimate of fecal contamination and poor sanitation during processing. In this study 150 samples of poultry products represented as chicken fillet ,chicken liver and smoked turkey products (50) for each,also another 120 sample of edible eggs represented as (30) for each sample of red egg, duck egg, white egg and balady eggs as each three egg represents one sample.

1- *E. coli* was isolated from poultry products by 14, 5, 0 from chicken fillet, chicken liver and smoked poultry products with percentage 28%, 10% and 0% respectively. From egg samples *E. coli* was isolated from (8/30) samples with apercentage of (26.6%) from whole red egg samples .

2- Serotyping of isolated strains was as following (O148, O125, O26, O158) from poultry products.

The isolated strains serotyped as (O1, O55, O44, O125) from egg samples.

3- Performing of sensitivity test for isolated strains ,they were found to be sensitive to ciprofloxacin, colistin sulphate, amoxycillin clavulinic acid and gentamycin.The isolates were resistant to doxycycline, cefotaxieme and erythromycin. Only one strain from this study show resistance to more than three antibiotics.

Regarding to PCR testing , the isolated strains were tested for *stx1*,*stx2* and *eae*A genes for virulence ,*eae*A gene was present in 100% of tested samples while *stx1*,*stx2* weren't detected in these strains. For the rsistance genes *bla*Tem and *tet*A were detected in the tested sample while *erm*B gene couldn't detected.

Regarding to *Pseudomonas* isolation and identification :

1- In chicken fillet samples this m.o. was present in 6 samples with apercentage 12% and in egg samples it was present in 4 samples with percentage 13.3% , it not detected in liver or smoked turkey samples.

2- The isolated strains were serotyped as *P.aeruginosua*.

3- By performing antibiotic sensitivity testing ;the isolates were sensetive to imipenem, gentamycin, ciprofloxacin and amoxycillin clavulinic acid., but they were resistant to cefotaxiema, colistin sulphate and doxycycline.

4- The isolates were confirmed by using 16SrRNA gene after that determination of virulence genes (*las B*and *tox A*) genes as they were present in 100% of isolates . Determination of resistance genes of *bla*Vim and *mexR* genes show that the first wasn't present in the tested samples while the second one was detected in all tested samples .

Regarding to Salmonella :

1- In the current study *Salmonella* was detected in the tested chicken fillet with incidence 2 % , while it was detected in egg with incidence 3.33% .The detected isolates were from chicken fillet and duck eggs shell.

2- The isolates were serotyped as *Salmonella* Enteritidis 1,9,12:g.m. this is for chicken fillet sample, the other isolate was serotyped as *Salmonella* Virchow 6,7,14:r:1,2 from duck eggs shell.

3- The antibaiotic sensetivity testing show that the two strains were sensitive to all used antibiotic discs .

4- Polymerase Chain Reaction was applied for detection of virulence genes *inv*A, *sop*B, *bcf*C and *stn* genes ,and the results showed that these genes were detected in all tested samples with percent 100%.